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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,833	04/08/2004	Steve Carr	16-511	8506

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Volvo Corporate Patents  
7825 National Service Rd. M.S. AP1/3-41  
Greensboro, NC 27409

EXAMINER
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MCCREARY, LEONARD

ART UNIT	PAPER NUMBER
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3616

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/820,833

Applicant(s)

CARR, STEVE

Examiner

Leonard J. McCreary, Jr.

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/6/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 2 stand rejected under 35 U.S.C. 102(b) as being anticipated by US 4,678,056 to Kobari et al. Kobari discloses a part time four wheel drive vehicle with road surface condition sensor comprising the following:

- a. For an over-the-road vehicle, a system that improves vehicle traction in wet road conditions comprising: a traction improvement module 6 that receives signals indicative of vehicle operating parameters and determines if the vehicle is hydroplaning based on the received signals and wherein the traction improvement module provides an output signal to activate at least one traction improvement measure; and an ultra-sound wave generator 2 that is activated by the traction improvement module as a traction improvement measure that directs ultrasonic waves in proximity W to a vehicle tire 13 (claim 1.)
- b. The ultra-sound generator 2 supplies ultra-sound energy to a wave guide 3 that directs ultra-sound waves in proximity to a vehicle tire 13 (claim 2.)

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 12 stands rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,678,056 to Kobari et al. The disclosure of Kobari is discussed above. Kobari does not teach a plurality of wave guides that direct ultra-sound waves in the proximity of each of the vehicle tires. It would have been obvious to one of ordinary skill in the art at the time of invention to include a plurality of wave guides in the proximity of each of the tires so as to enhance traction at individual wheels as localized traction conditions may require, and further since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

5. Claims 3-7, 10, and 13-22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,678,056 to Kobari et al. in view of US 5,350,035 to Bodier et al. The disclosure of Kobari is discussed above, and Kobari further teaches:

- c. A wave guide that directs ultra-sound waves onto the road surface immediately in front of the tire (col 4, lines 26-29) (claim 13.)
- d. The ultrasound generator 2 supplies ultrasound energy to a wave guide 3 (claim 17.)

Kobari does not teach additional sensors. Bodier discloses an antihydroplaning system for a motor vehicle and teaches the following:

- e. An accelerometer that provides signals indicative of vehicle acceleration to the traction improvement module (col 4, lines 41-45) (claim 3.)
- f. A brake module 16 that provides signals to the traction improvement module that indicate that brakes on the vehicle have been activated (also admitted prior art, col 1, lines 31-33) (claim 4.)
- g. The brake module is associated with an ABS system (col 4, lines 30-34) (claim 5.)
- h. An axle speed sensor 8, 9, 10, 11 that provides signals indicative of vehicle wheel rotational speed to the traction improvement module 1 (claim 6.)
- i. A traction enhancing agent dispenser 13 that is activated by the traction improvement system to dispense a traction enhancing agent in proximity to the vehicle tire (col 4, lines 10-19) (claim 7.)
- j. The traction enhancing agent is dispensed on the road surface immediately in front of the tire (col 4, lines 12-13) (claim 10.)
- k. A wave guide 12 that directs ultra-sound waves onto the tire treads (col 3, lines 37-41) (claim 14.)
- l. The traction improvement module receives signals from an accelerometer that indicates vehicle acceleration, from an axle speed sensor that indicates vehicle wheel speed, and from a brake module that indicates brake actuation status and wherein the traction improvement module has stored in a memory a

correlation between the accelerometer and axle speed sensor based on brake actuation status that represents normal vehicle operating conditions and wherein when the signals from the accelerometer and axle speed sensor diverge from the correlation the traction improvement module activates the traction improvement measures (col 4, lines 39-52) (claim 15.)

m. A method for improving vehicle traction in wet road conditions comprising: monitoring a plurality of vehicle operating parameters to obtain vehicle operating parameter values; determining a baseline correlation between the vehicle operating parameter values during normal vehicle traction conditions; during vehicle operation, monitoring the vehicle operating parameters and compiling an operating condition correlation; comparing the operating condition correlation with the baseline correlation; and activating an ultra-sound generator as a traction improvement measure that directs ultra-sound waves in proximity to a vehicle tire when the operating condition and baseline correlations deviate from one another by more than a threshold amount (col 4, lines 39-52) (claim 16.)

n. One of the plurality of vehicle operating parameters is measured by an accelerometer that provides signals indicative of vehicle acceleration (col 4, line 44) (claim 18.)

o. One of the plurality of vehicle operating parameters is measured by a brake module 16 that provides signals that indicate that brakes on the vehicle have been activated (also admitted prior art, col 1, lines 31-33) (claim 19.)

- p. One of the plurality of vehicle operating parameters is measured by an axle speed sensor 8, 9, 10, 11 that provides signals indicative of vehicle wheel rotational speed (claim 20.)
- q. Activating a traction enhancing agent dispenser 13 that dispenses a traction enhancing agent in proximity to the vehicle tire (col 4, lines 12-13) (claim 21.)
- r. The wherein the one or more vehicle operating parameter values are obtained from an accelerometer that indicate vehicle acceleration, from an axle speed sensor that indicates vehicle wheel speed, and from a brake module that indicates brake actuation status and wherein the baseline correlation correlates data from the accelerometer and axle speed sensor based on brake actuation status in normal vehicle operating conditions and wherein when the operating condition correlation diverges from the baseline correlation the traction improvement measures are activated (col 4, lines 39-52) (claim 22.)

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the traction improving system of Kobari to include a plurality of sensors as taught by Bodier so as to aid the control unit in recognizing clearly whether there is the danger of hydroplaning (col 1, lines 61-68.) It would have been obvious to one of ordinary skill in the art at the time of invention to modify the traction improving system of Kobari to include a traction dispensing agent as taught by Bodier so as to break up the water layer in front of the tire (col 2, lines 53-55.)

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6. Claims 8-9 and 11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,678,056 to Kobari et al. in view of US 5,350,035 to Bodier et al. as applied to claim 7 above, and further in view of US 5,100,175 to Swallow et al. The disclosure Bodier is discussed above. Bodier does not teach specific traction enhancing agents. Swallow discloses a tire traction enhancing kit and teaches the following:

- s. The traction enhancing agent is a deicing solution (col 1, lines 52-55) (claim 8.)
- t. The traction enhancing agent is rock salt (admitted prior art, col 1, lines 20-23) (claim 9.)
- u. The traction enhancing agent is dispensed onto the tire treads (col 4, lines 12-14) (claim 11.)

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the traction improvement system of Bodier to include the use of deicing solution or salt and to apply the traction enhancing agent directly to the tire tread as taught by Swallow so as to enhance traction during conditions of ice or snow (col 3, lines 1-6.)

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard J. McCreary, Jr. whose telephone number is 571-272-8766. The examiner can normally be reached on 0700-1700 M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Dickson can be reached on 571-272-6669. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Leonard J. McCreary, Jr.  
Examiner  
Art Unit 3616

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PAUL N. DICKSON  
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